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AUTHOR Moore, Raymond
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ABSTRACT

Tendency to structure and authoritatively control the learning experience of students was measured in 10 freshman English professors. Need for control and structure was measured in 142 of the students of these teachers. Students who needed structure most performed significantly better (in terms of grades) when they happened to get with 1 of the 5 teachers who tended to structure and control most. Students who needed structure and guidelines least were not as differentially influenced by the 2 faculty groups, although they performed best when they happened to get with 1 of the teachers who tended to structure and control least. It is believed that ability was successfully controlled, since ACT English ability scores did not vary significantly from group to group; therefore, the differences in performance cannot be explained as ability differences. (Author/HS)

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Abstract

The Influence of an Interaction Between College Students' Personalities and their Teachers' Personalities upon the Students' Achievement

Raymond Moore

Drake University

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THE INFLUENCE OF AN INTERACTION BETWEEN COLLEGE STUDENTS' PERSONALITIES AND THEIR TEACHERS' PERSONALITIES UPON THE STUDENTS' ACHIEVEMENT

Raymond Moore

Drake University

Both faculty members and students come to the student-teacher relationship predisposed to relate to each other in specific ways. There are a variety of acceptable ways for the university teacher to define his role, and these various acceptable definitions may differ extremely (Moore, 1970). The way in which any given teacher functions may optimize the potentials of some students and minimize the potentials of other students, depending upon the needs and preferences of the particular student. We can all recall teachers who were good for us and teachers who were not good for us. Teachers who were not good for us may have met the needs of other students quite well.

Method

Design, independent and dependent variables. One of the two independent variables in the design was high vs. low need of teachers to control and structure the learning situation for students. The other independent variable was high vs. low need on the part of students for control, structure, guidlines, etc. The basic purpose of this experiment was to assess the influence of the interaction of these two independent variables upon the grades which students received in a course (the depende variable).

Subjects. Subjects were 10 teachers, and 142 of their students from 25 sections of freshman English at Drake University during the fall of 1968. More than 142 students were in these sections, but only students with an A.C.T. English score above 20 were included. Each section of

freshman English at Drake averages only about 15 students and is taught in a seminar style.

Students and professors knew only that they were asked to take a short test concerning their attitudes toward education. They did not know that this study was being conducted. All testing was completed before the first class meeting. No effort was made by the experimenter to schedule particular students with particular teachers. Each student selected his own section based on his schedule and other considerations which were in no way related to this experiment.

Measures of independent variables. Teachers were assigned to either the high or low need-to-structure category based upon their score on a 12 item scale which was derived (along with two other scales) from a factor analysis of faculty member's attitudes toward the university teacher's role (Moore, 1970). The split-half reliability of this scale, after application of the Spearman-Brown correction, is .94. The faculty member's response on each item is psychometrically scaled (Wolins et al, 1963; Moore, 1970) which probably explains the high reliability of a relatively short scale. Each item yields a score which can vary from -8 to 8. Therefore, the teacher's scores were free to vary from -96 to 96 for the sum of the 12 items.

This is a bipolar scale. At one pole attitudes are endorsed such as, the teacher knows exactly what should be taught and how it should be taught. Little faith is expressed that students are willing or able to take charge of their own learning. Students are seen as children with limited judgment, who need to depend upon forces outside themselves for motivation in the form of grades. Professors who score nearer this pole of the continuum might be called authoritarian, conservative, or "spoon feeders." For this study, these teachers were designated, "teacher who need to structure the learning experience." At the opposite end

of the continuum is a cluster of attitudes which state that factual knowl is not a useful focus for an educational program, and that the student should help structure his own learning experiences. Professors who scored near this end of the continuum were designated, "teachers who do not need to structure the learning experience for students." Scores for the ten professors in the present study ranged from -14 to 43. Low or negative scores indicate a need or preference of the professor to structure the learning situation. The professors with the five lowest scores (-14, -5, -2, and 7) were assigned to the need-to-structure category. The five highest scores (11, 12, 24, 30, and 43) were assigned to the no-need-to-structure category. Prediction of individual and small group differences is quite justified on the basis of the high reliability of this scale.

Student's need for structure was measured on a scale which was deriv along with four other scales, by factor analysis of the attitudes of 791 students. Like the faculty scale, each of the student's items is psychometrically scaled, but there are only five items on the student's scale, therefore the individual's score can range only from -40 to 40. A split-half reliability on four of the scale's five items yields only a .63 (corrected, Spearman-Brown). This estimate of the scale's reliability is based on only four of its five items, and it is very probable that the full length scale is at least precise enough to discriminate between a relatively large group of students who need structure and another relatively large group of students who do not need structure. Therefore, the reliability of the student's scale does not need to be of the high precision required of the faculty scale. The mean of the 142 students included in the study was 10.8 on this scale. Therefore, students who scored 10 and below on the scale were assigned

to the need-for-structure group and students who scored 11 and above were assigned to the no-need-for-structure group.

The scaling techniques used in this study have been shown to yield scales with properties of additivity and homoscedasticity in a wide variety of settings and applications, and it is quite justified to treat these scores parametrically.

RESULTS

Table 1. Contains the results of the experiment.

Insert Table 1 about here

Rather than tabulating only the number of students receiving either a B or C under each combination of the experimental conditions (column 1), the mean score of each group on the need-for-structure scale is also tabulated (column 2). The need-for-structure scores are therefore serving a dual purpose. Whether the score is 10 or below, or 11 or above serves as an independent variable, but it is possible that the intensity of the need within each group (indicated by the group's mean score) may be systematically related to whether the group received B or C under a particular combination of conditions, therefore the means can play a role of dependent variable. Finally, the grade which a student receives can be related to his ability, therefore, the mean A.C.T. English score is tabulated for each group in the third column.

Looking at column 1, we see clearly that students with a need for structure did better when they happened to get with a teacher who needed to structure the learning experience (20 received a B and 14 received a C), than when they happened to get with a teacher who did not need to structure the learning experience (only 15 of these students who needed structure received a B as opposed to 26 who received a C.). These

differences are significant beyond the .05 level (X^2 Test). The students who did not need structure were not so greatly influenced by whether or not their teacher structured the situation for them. Students who did not need structure did receive more B's than C's when they happened to get with a teacher who did not prefer to structure, but there is not a significant difference for these students across the two groups of teachers. Within each of the faculty groups, a X^2 was run on the frequency of students who received B or C vs. high or low need for structure. Neither of these X^2 ratios was significant at the .05 level, although the X^2 of the students who happened to get with the faculty low in need to structure did surpass the .10 level in the direction of students low in need for structure doing best.

Looking at column 2, we can see two large mean differences on the need-for-structure scale. Of the students who needed structure, and who happened to get with professors who needed to structure, it is those who needed structure the most (mean of 0.6) who received B's. Those who needed structure the least (mean of 6.1) received C's. This mean difference is significant beyond the .01 level of confidence as measured by a Mann-Whitney U test. The Mann-Whitney was used because an F test indicated a significant difference in the variances of the students who received B and those who received C. Next, it should be noted that students who did not need structure, and who happened to get with professors who did not need to structure, did best (grade of B) when their need for structure was lowest (mean of 22). The mean of the students who received C was significantly lower, indicating a greater need for structure. A t test indicated that this mean difference was significant beyond the .05 level. The variance of these two groups was homogeneous, as indicated by an F test.

Finally, turning to column 3, we must yet dismiss the possibility that the differences in the student's performance can be explained on the basis of their ability. The mean A.C.T. English score of each group appears in column 3. The standard deviations for these groups ranged from 1.6 to 2.6. A *t* test was performed between the mean A.C.T. score of every group and the mean A.C.T. score of every other group. None of these mean differences were significant. Therefore, although the groups who received B were usually a point or so higher on the A.C.T., these differences are not statistically significant. What is most important is that, for example, the students who needed structure and received C were equal in ability for both the faculty who needed to structure (A.C.T., 21.6) and the faculty who did not need to structure (A.C.T., 22.2). In fact, the mean of the group which was with faculty who did not structure was slightly higher in ability and yet they performed significantly more poorly than the students who needed structure and who were of equal ability who happened to get with teachers who structured the learning experience.

DISCUSSION

There are a number of clear indications that there is a significant interaction between faculty attitudes and student attitudes which determines how well the student performs. These differences in performance cannot be explained on the basis of differing levels of ability. It is surprising that even with such an imprecise measure as the need-for-structure scale, such fine differences of performance as between a B and C are discernible. The investigator had originally planned this study expecting to find no more than some differences between students receiving F's and A's. As it turned out only 4 students with A.C.T. English scores

above 20 received an F. Only 14 students received an A. Only nine students received a D. These numbers were obviously too small, and therefore the investigation had to focus at the B and C level of performance. The question which comes to mind after reviewing the results of this study is, why are we combining students with teachers on the basis of chance and accident, when we can optimize the student's potentials by systematically placing him with a teacher who will best meet his needs. This would seem most crucial during the freshman year when we lose the highest percentage of our dropouts. Perhaps we would not do a service to the upperclassman by meeting his needs so adequately. Perhaps he should systematically be placed with teachers who do not structure and control the learning experience, so that he will be forced to do more for himself. But for the freshman, and perhaps the sophomore, we want to optimize the chances of doing well and surviving in the college environment. Except when students select further courses on the basis of having liked a former teacher, the crucial student-teacher relationship is formed on a purely chance basis. Advisor-student relationships are also formed in an unselected manner. Since we can measure personality factors of students and teachers at a better than chance level of accuracy, it might be advisable that we, where feasible, begin consciously putting students with teachers and advisors who will fulfill their needs, and whom they can more easily admire and trust. It is also possible to give teachers students who will more likely be satisfying to them, since teachers also vary in their willingness to relate to various students. While one teacher will react with impatience and rejection to a particular student, another teacher will derive satisfaction from helping this same student. Perhaps through restructuring we could do more with our existing resources to more effectively and efficiently achieve the goals of helping students learn and develop.

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Table 1.

Three Measures Related to Student Performance for the Various Combinations of Students High and Low in Need for Structure and Teachers High and Low in Need to Structure

Group		Measures Related to Student Performance		
		Number Receiving Grade	Mean Score Need-for-Structure	Mean Score A.C.T. English
Faculty with High Need to Structure				
Students with High Need for Structure	Received B	20	0.6	23.0
	Received C	14	6.1	21.6
Faculty with High Need to Structure				
Students with Low Need for Structure	Received B	16	19.3	23.2
	Received C	15	18.3	22.3
Faculty with Low Need to Structure				
Students with High Need for Structure	Received B	15	2.8	23.5
	Received C	26	3.0	22.2

Table 1. Continued

Faculty with Low Need to Structure

Students with Low Need for Structure	Received B	20	22.0	23.3
	Received C	16	16.3	21.9